

DISSERTATION
ON

**“AN ANALYTICAL SURVEY OF TYPES OF
PESTICIDES USED IN THE PADDY FIELD OF
DIFFERENT AREAS OF SOUTH SALAMARA
MANKACHAR”**



HATSINGIMARI COLLEGE HATSINGIMARI

*Submitted in partial fulfilment of the requirement for the Degree of Bachelor
of Science, CBCS*

DEPARTMENT OF CHEMISTRY

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CERTIFICATE

This is to certify that the work contained in the Dissertation entitled "AN ANALYTICAL SURVEY OF TYPES OF PESTICIDES USED IN THE PADDY FIELD OF DIFFERENT AREAS OF SOUTH SALAMARA MANKACHAR", submitted by ABDUR REZZAK SK (Regd. No: 19035804), Roll NO- US-191-168-0002) the award of the degree of 'Bachelor of Science' to the Hatsingimari College Hatsingimari, is a record of Bonafide research works carried out by him under my direct supervision and guidance.

I considered that the dissertation has reached the standards and fulfilling the requirements of the rules and regulations relating to the nature of the degree. The contents embodied in the thesis have not been submitted for the award of any other degree of diploma in this or any other university.

Principal
Hatsingimari College, Hatsingimari

Signature of Guide
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(Department of Chemistry)

DECLARATON

I, hereby declare that, this work entitled "**AN ANALYTICAL SURVEY OF TYPES OF PESTICIDES USED IN THE PADDY FIELD OF DIFFERENT AREAS OF SOUTH SALAMARA MANKACHAR Assam**". Submitted to the department of chemistry ,Hatsingimari, Assam.

In partial fulfillment for the award of the degree B.sc 6th Sem CBCS and it has not been previously considered for the award of any diploma, associateship, fellowship or any other similar title or recognition from any university, Institute or other organization.

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ABSTRACT

Pesticide is an indispensable part of modern Agriculture over the years new researches from private and public Organisation are towards developing new molecules or new formulations which are easy to use, economic and environmentally safe. The Pesticide poisoning and pollution are two major negative effects of pesticides. Awareness programme should be included to obtain the optimized pesticide use. Proper pest monitoring protective clothing, application of pesticide at right time at right dose and at right quality should be integral part of pesticide application. More Specifically, pesticides can keep harmful pests such as rats, mice, ticks and the plants away from weed and diseases that the plants away from crops protecting the plants away from weed and diseases that have the ability to greatly reduce crop yield.

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CHAPTER 1

INTRODUCTION

In the last century the population has been exposed to an increase in the use of crop protection products. The progress in the protection of plants and the development of synthesis chemicals such as pesticides widely contributed to the regularity of the production. However the systematic use of these products today is questioned; with the increasing awareness of the risks which they can generate for all the components of the environment even for man health. toxicological consequences due to the exhibition in these thousands chemical components by means of the food, water and ground are alarming.

Paddy (*oryza sativa*) Cultivation is the most important agricultural operation in our country not only in terms of food security but also in terms of livelihood. It plays a major part in the diet economy, employment culture and History of india .India is one of the worlds largests producer of rice and brown rice , accounting for 20% of all world rice production . It grows in almost all states in India (West Bengal, Uttar Pradesh, Panjab, Haryana, Andra Pradesh ,Tamil Nadu, Chhattishgarh are the major states. It is a tropical plant. It flourishes comfortably in hot and humid climate. It is mainly grown in hot and humid climate. It is mainly grown in rain fed areas that receive heavy

rainfall annually.that is why it is a fundamentally kharif crop in India.It is also grown through irrigation in those areas that receives comparatively less rainfall.

In Assam ,rice is the single most important crop .It occupies 2.54 million ha of the gross cropped area of 4.16 million ha and contributes 96% of the total food grain production of the state .Assam is very well recognized for its rich rice genetic diversity. South Salmara Mankachar in an administrative district in the state of assam in India. South Salmara Mankachar District is primarily depends on agricultural and forest products.The main source of income is paddy(both winter and autumn) with surplus production.

Weeds are thje major problem in the rice farms because they compete directly with the plants and reduced yields.It has been observed that there could be 1 kg of grain loss for every 1 kg of dry weeds . weeds ,insects and disease causes harms to the crops and farmers lose an estimated average of 37% of their rice crop due to pest and disease every year . In addition to good crop management ,timely and accurate diagnosis of these pest and disease and proper chemical management can significantly reduce these losses.

CHAPTER 2

APPLICATION METHOD

Rice is considered as a staple food for a large human population in the world. It is estimated that rice is the third largest produced commodity after sugarcane and maize. This plant is majorly cultivated in countries where labour costs are low because cultivating rice or paddy is a labour intensive task and requires heavy rainfall conditions.

Among the surveyed farmers of South Salmara Mankachar District, 57% used hand sprayer and 8% used Knapsack sprayer to apply the pesticides on the paddy field. Remaining 18% of farmers used broadcast methods and 16% used other traditional methods.

The sprayers they used were not in good condition. The hand sprayer they used includes a container



with broom and sprinkled the pesticide with broom. Most of the farmers don't have any sprayer of their own, they borrowed it

from relatively from richer farmers. They didn't have any training about the sprayer use and precautions. Therefore the sprayer was always associated with high risk of exposure. The farmers broadcast the granular insecticide keeping in an

open bowl and basket and broad cast by bare hand and feet .The traditional Methods they use are very unscientific. For example, they brush the crop field. In this method, usually the insecticide is mixed with water in an open bowl or a big can then palm leaf is

soaked in it and the standing crop plant is brushed. During the mixing and brushing the farmers as well as environment are exposed to pollution. No farmers have used any protective measure such as musk gloves . According to the pesticide agent and leaflet provided by the Department of agricultural Extension , the measuring unit is being used as spoonful ,handful or lidful.

Over all pesticides are dispersed by different methods like spraying,dusting etc.For spraying of pesticides different type of nozzles such as hydraulic, air blast, centrifugal and heat energy type are used .Water is a common carrier of pesticide but air or oils soap solution are also used as carriers.

CHAPTER 3

RESULTS AND DISCUSSION

A Pesticide is a Substance that is used to prevent unwanted plants, Animals and other organisms that are harmful to human animals and plants. It is mixture of substances that are chemically, biologically or physically made to repellent or destroy the pest. pesticide are used from ancient times to protect themselves and their crops. Some example of pesticides are Herbicides,Fungicides,rodenticides,insecticides etc. Here some synthetic pesticides that are commonly used DDT, boric acid ,Malathion ,DEET, glyphosate,acephate,diazinon etc. Herbicide,Fungicide,Rodenticides and insecticides are the main pesticides form used for improving agriculture

growth and also for maintenance of buildings.



- **HERBICIDES**:- These are mainly used to prevent the growth of weeds in the crop field . It helps in disturbing the good conditions required for the growth of plant.
- **FUNGICIDE**:- These pesticide helps in limiting the growth of fungi or killing them.
- **RODENTICIDE**:- It is chemical substance used to kill rats,mice,and other rodents.Rodenticides are also helpful in controlling birds , fish, and mammals but under the regulatory act.
- **INSECTICIDE**:- It helps in controlling mosquitoes, flies,bugs and other pests.

These were commonly used pesticide to inhibit pests. These are also pesticides available to prevent larvae and bacteria growth.

Advantages of pesticides

➤ **Pesticides help in an abundant harvest:**

By using pesticides it ensures that crop is protected by pests and are healthy for harvest pesticides ensure crops are not damaged and not infected by any pests.

➤ **It helps keep food affordable:**

Pesticides help farmers to grow more food which directly in making food cheap and easily available

➤ **Pesticides help to prevent insects and water borne transmission disease:**

Pesticides help in preventing disease such as malaria ,typhus etc.

➤ **Pesticides help farmers to grow more crops in the same or less land:**

When there is low chances of pests in crop fields then it become more chances of more production of crops in the same land.

➤ **It helped globally to increase the economical growth of a country:**

The economical growth of a country is very much dependent on growth of food production and the pesticides help farmers with a healthy yield that helps in improving economic growth.

Disadvantages of Pesticides

➤ **Impact On human health:**

By continuous toxic food consumption directly affects the health of humans drastically. So, many disease such as allergy, asthma, cancers are occurred due to the use of harmful pesticides which are found in many forms around us.

➤ **Negative effect on other life species:**

The chemical kills various pests which damage crops but it also kill some species which can be helpful for crops.

➤ **Environmental pollution:**

Some farmers use an excess of pesticide which pollute not only soil but under ground water also.

➤ **Genetic Defect:**

The continuous use of pesticides leads to a negative impact on soil fertility for long term.

Here list of some commonly used pesticides used in South Salmara Mankachar District

Sl.no	Name of Pesticide	Consumption
1	Phorate	3284
2	Mancozeb	3118
3	Methyl Parathion	2739.32
4	Cyper methrin	2473
5	Carbendazim	1992
6.	Monocrotophos	1815
7	Malathion	1739.39
8	Quinalphos	1595
9	Acephat e	1513
10	Triazophos	1164.48
11	Diclovos	960
12	Fenvalerate	776
13	2,4 D	662
14	Dimethoate	636
15	Captan	471
16	Zinab	462
17	Paraquart dichloride	NA
18	Chlorpyrifos	NA
19	Phosalone	NA
20	Carbofuran	NA

CHAPTER 4

CONCLUSION

South Salmara Mankachar District is primarily depends on agriculture and forest products . The main source of income in paddy rice is considered as life for more than 50% population around the world .Products from rice like the popped rice, puffed rice ,rice flakes canned rice and other fermented varieties are also used in large quantities .Straw obtained from the rice plants is Used as cattle feed roof thatching for the preparation of hats, mats, and litter material .

By using pesticides it ensure that crop is protected by pest and healthy for harvest. Pesticides help to prevent insects and water borne transmission disease .In recent years growing use of pesticides by farmers.Unaware of the negative effects pose a big challenge to health environment and the declining economy of our country.Cropland is a major source of sediment and the sediments resulting from soil erosion in regard as the largest pollutant that affects water quality. The occurrence of fish epidemics in different parts of the country is apprehended by the scientist and local people that fish

mortalities in open water occurred due to uncontrolled use of pesticides in irrigated rice field.

Some extremely hazardous pesticides are used in our country . Although there are prohibited in some countries . The environmental degradations linked to

Agriculture is the impact of toxicity from improper pesticide use .Here the damage is less on agricultural productivity than the people who may be inadequately protected from the chemicals are the greatest threat of toxic exposure is from the used crop, which puts both producer and consumers at risk.The other type of toxicity related damage is from pesticide run off and especially from pesticides in ground water.Therefore,modifications in regulations concerning pesticide handling and applications will minimize most pesticide related environmental and health damage.The Hazardous pesticides should be withdraw from the market as early as possible.

Proper pest monitoring,protective clothing,application of appropriate pesticide at right time at right dose and target species should be integral part of pesticide application.Genuine concerns on consumer and environmental safety of pesticide uses should be dealt with scientific findings. Need of the hour is to have a ready made Pesticide detection kit at affordable price . Long term pesticides uses and its effect on flora and fauna should be

investigated. Mass awareness among end users about optimization of chemical pesticide use in rice is the need of the hour .

CHAPTER 5

REFERENCE

1. L. E. Brus, Electronic wave functions in semiconductor clusters: experiment and theory, J. Phys. Chem., 1986, 90, 2555–2560.
2. C. F. Bohren and D. R. Huffman, Absorption and Scattering of Light by Small Particles, Wiley, New York, 1983.
3. H. C. Van de Hulst, Light Scattering by Small Particles, Dover Publications, Inc., New York, 1981.
4. N. S. Pesika, K. J. Stebe and P. C. Searson, Relationship between absorbance spectra and particle size distributions for quantum-sized nanocrystals, J. Phys. Chem. B, 2003, 107, 10412–10415.
5. E. A. Meulenkamp, Synthesis and growth of ZnO nanoparticles, J. Phys. Chem. B, 1998, 102, 5566–5572.